

1           1.    A method comprising:  
2                   forming a phase change material between a pair of  
3 horizontally spaced electrodes.

1           2.    The method of claim 1 including enabling light to  
2 access said phase change material.

1           3.    The method of claim 1 including forming a  
2 conductive line in a substrate and forming said material  
3 and said electrodes over said substrate.

1           4.    The method of claim 3 including forming a  
2 selection device in said substrate.

1           5.    The method of claim 4 including forming a  
2 electrical connection from said substrate to a second  
3 electrode.

1           6.    The method of claim 5 including electrically  
2 coupling said second electrode to one of said horizontally  
3 displaced electrodes.

1           7.    The method of claim 1 including covering at least  
2 a portion of said phase change material with an optically  
3 transmissive material.

1           8.    The method of claim 1 including forming two pairs  
2   of electrodes for two spaced cells at the same time.

1           9.    The method of claim 8 including depositing a  
2   material to form said electrodes in a trench.

1           10.   The method of claim 9 including clearing the  
2   bottom of the trench to separate said electrodes and  
3   filling the remaining portion of said trench with the phase  
4   change material.

1           11.   The method of claim 1 including covering said  
2   phase change material with a light transmissive material.

1           12.   A memory comprising:  
2                a pair of horizontally spaced electrodes; and  
3                a phase change material between said pair of  
4   horizontally spaced electrodes.

1           13.   The memory of claim 12 wherein said spaced  
2   electrodes and said phase change material are formed over a  
3   substrate having a horizontally disposed upper surface.

1           14.   The memory of claim 12 including a light  
2   transmissive material over said phase change material.

1        15. The memory of claim 14 wherein said light  
2 transmissive material is a non-switching high bandgap, and  
3 electrically insulating chalcogenide material.

1        16. The memory of claim 12 wherein said phase change  
2 material is a chalcogenide material.

1        17. The memory of claim 12 wherein said spaced  
2 electrodes sandwich the phase change material, one of said  
3 spaced electrodes being shorter than the other of said  
4 electrodes, an optically transmissive material contacting  
5 the shorter of said spaced electrodes and said phase change  
6 material.

1        18. The memory of claim 17 wherein said phase change  
2 material is sandwiched laterally between parallel plate  
3 electrodes.

1        19. The memory of claim 18 including a substrate and  
2 a selection device in said substrate, said selection device  
3 coupled to a second electrode above said substrate, said  
4 second electrode coupled to a conductive material in turn  
5 coupled to the shorter of said spaced electrodes.

1        20. The memory of claim 17 including a pair of cells  
2 positioned side by side, each cell including said  
3 horizontally spaced electrodes with a phase change material  
4 between said electrodes, an optically transparent material  
5 arranged so as to extend over the phase change material  
6 memory of each cell, said cells being separated by an  
7 insulating material.

1        21. The memory of claim 20 wherein each cell includes  
2 a conductor coupled to a selection device in said  
3 substrate, each conductor in turn coupled to an  
4 electrically conductive via that couples said conductor to  
5 the shorter of said spaced electrodes.

1        22. A system comprising:  
2            a controller;  
3            a wireless interface coupled to said processor-  
4 based device; and  
5            a semiconductor memory coupled to said device,  
6 said memory including a phase change material and a pair of  
7 horizontally spaced electrodes sandwiching said phase  
8 change material.

1        23. The system of claim 22 wherein said phase change  
2 material is a chalcogenide.

1           24. The system of claim 22 wherein said spaced  
2 electrodes and said phase change material are formed over a  
3 substrate having a horizontally disposed upper surface.

1           25. The system of claim 22 including a light  
2 transmissive material over said phase change material.

1           26. The system of claim 22 wherein said wireless  
2 antenna includes a dipole antenna.